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Fax: (248) 223-9522

Phone: (248) 223-9500

To: Examiner Robert Raevis, Group Art Unit 2856

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Fax No.: (703) 872-9319

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From: John S. Artz

Date: August 21, 2003

Our File No: LAG 0104 PUS

Serial No.: 10/057,530

**Comments: Attached is corrected response to Final Rejection dated
June 20, 2003.**

Total Pages (incl. Cover sheet): 13

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(248) 223-9500.*

Latitia Ford
(Operator)

28333 TELEGRAPH ROAD, SUITE 250, SOUTHFIELD, MICHIGAN 48034
TELEPHONE: (248) 223-9500 -- FACSIMILE: (248) 223-9522

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Paul L. Lagraff, et al.

Examiner: Robert Raevis

Serial No. 10/057,530

Group Art Unit: 2856

Filed: January 25, 2002

For: BIOAEROSOL SLIT IMPACTION SAMPLING DEVICE

Atty. Dkt. No.: LAG 0104 PUS

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Dated: 8/21/2003

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RESPONSE AFTER FINAL REJECTION - (CORRECTED)

Mail Stop AF
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

OFFICIAL

Dear Sir:

This is in response to the Final Rejection mailed June 20, 2003. This response is being being submitted within the shortened two (2) month period set for response in order to receive the benefit of an advisory action.

Kindly amend the above-identified application as follows:

In the claims:

1. (Previously Amended) An airborne particle impaction sampler, comprising:

a base;

a microscope slide disposed on said base;

an adhesive media located on said microscope slide to assist in adhering airborne particles on said microscope slide;

a top cap secured to said base, said top cap having an inlet opening formed therethrough, said inlet opening being configured as a slit;

said inlet opening having an outer venturi section and an inner laminar section such that air entering the sampler impacts said adhesive media.

2. (Previously Amended) The sampler of claim 1, wherein said inlet opening has a pair of generally straight opposing side portions and a pair or arcuate end portions.

3. (Original) The sampler of claim 2, wherein said venturi section has a pair of oval sides that extend generally inward from a respective one of said arcuate end portions.

4. (Original) The sampler of claim 3, wherein said venturi section has a pair of opposing side surfaces that converge towards one another.

5. (Original) The sampler of claim 1, wherein said top cap telescopically fits over said base.

6. (Original) The sampler of claim 1, wherein said base has a groove formed in its outer surface and an o-ring disposed in said groove to prevent air from leaking into said sampler when said top cap is secured to said base.

7. (Original) The sampler of claim 1, further comprising:
a vacuum source attached to the sampler for drawing air therein.

8. (Currently Amended) A method of gathering airborne particles in
an air sampler, comprising:

providing a microscope slide;

preparing said microscope slide with an adhesive media;

loading said slide into the sampler;

assembling a top portion of the sampler to a base portion;

connecting a vacuum source to an outlet opening of the sampler;

drawing air into an inlet opening formed in said top portion of the
sampler, said inlet opening being substantially smaller than an upper surface of said
top portion;

accelerating air in an inlet passageway after it enters said inlet opening;

and

directing the air such that it impacts said adhesive media in a
perpendicular direction by passing the air through a generally laminar portion of said
inlet opening passageway.

9. (Original) The method of claim 8; wherein said adhesive
media is applied to a middle two-thirds portion of said microscope slide.

10. (Original) The method of claim 8, further comprising:
precalibrating said vacuum source.

11. (Original) The method of claim 10, further comprising:
calibrating said vacuum source on-line during the gathering of airborne
particles.

Claims 12 – 19 (cancelled).

20. (Previously Amended) An airborne particle impaction sampler comprising:

a housing;

a slide disposed within said housing;

a coating disposed on said slide to assist in adhering airborne particles on said slide;

a inlet formed in said housing in proximity to said slide;

a passageway in communication with said inlet to convey air entering the sampler to said slide, said passageway having an venturi section located adjacent said inlet and a laminar section;

said passageway having a non-circular opening adjacent said slide to direct the air at the slide in a generally elongated fashion.

Previously Presented
21. (Original)

The sampler of claim 20, wherein said laminar section is located adjacent said venturi section.

22. (Currently Amended) A method of gathering airborne particles into an impaction sampler comprising:

providing a housing;

locating a microscope slide in said housing, said microscope slide having an adhesive media applied thereon;

drawing air through a small opening formed in said housing and into a passage located adjacent said microscope slide;

accelerating said drawn air in first portion of said passage after it has passed through said opening;

passing said accelerated air from said first portion to a second portion, said second portion having a smaller diameter side to side distance than said first portion; said second portion having an opening adjacent said microscope slide that is non-circular in shape.

23. *Previously Presented*
(Original) The method of claim 22 wherein said step of drawing air further comprises connecting a vacuum source to an outlet opening of the sampler.

24. *Previously Presented*
(Original) The method of claim 22, wherein said opening is configured in the shape of a slit.

25. *Previously Presented*
(Original) The method of said passage of claim 22 wherein said first portion is a venturi portion and said second portion of said passage is a laminar portion.

26. *Previously Presented*
(Original) The method of claim 22, further comprising:
directing the air such that it impacts said adhesive media in a substantially perpendicular direction.

27. (Currently Amended) A bioaerosol impaction sampling device, comprising:

a housing including a first portion and a second portion which are in releasable engagement with each other;

a slide disposed in said housing and in communication with an inlet passageway formed in said housing;

a recessed portion being formed in said housing and sized to receive at least a portion of said slide;

said housing having a bore formed adjacent to said recessed portion, said bore being sized such that air can flow around said microscopic slide and into an outlet opening;

a remote vacuum source in communication with said outlet opening; and

said inlet passageway having an outer inlet opening and an inner inlet opening, wherein said outer inlet opening is larger than said inner inlet opening.

28. *Previously Presented*
(Original) The device of claim 27, wherein said first portion is a top cap and said second portion is a base.

29. *Previously Presented*
(Original) The device of claim 28, wherein said inlet passageway is formed in said top cap.

30. *Previously Presented*
(Original) The device of claim 28, wherein said recess is formed in said base.

31. *Previously Presented*
(Original) The device of claim 27, wherein said inner inlet opening is configured as a slit.

32. *Previously Presented*
(Original) The device of claim 31, wherein said slit is generally rectangular.

33. *Previously Presented*
(Original) The device of claim 23, wherein said inlet passageway has a venturi portion.

34. *Previously Presented*
(Original) The device of claim 27 wherein said inlet passageway has a laminar portion and a venturi portion with said laminar portion being located adjacent said inner inlet opening.

35. (Currently Amended) An impaction air sampler, comprising:
a housing having an upper portion and a lower portion;
a retaining mechanism formed in said housing for holding a slide placed therein;
an inlet passageway being formed in said housing adjacent said slide;
said housing having a bore, which is sized to allow air to flow around said slide; and
an outlet passage in communication with said bore at one end and a remote vacuum source located exterior to said housing at another end.

Previously Presented
36. (Original) The sampler of claim 35, wherein said retaining mechanism is a recess.

37. (Currently Amended) The sampler of claim 35, wherein said inlet passageway is formed in said upper portion of said housing.

Previously Presented
38. (Original) The sampler of claim 35, wherein said inlet passageway has a venturi portion.

Previously Presented
39. (Original) The sampler of claim 35, wherein said inlet passageway has a laminar portion.

Previously Presented
40. (Original) The sampler of claim 39, wherein said inlet passageway has a venturi portion with said laminar portion being located adjacent said slide.

Previously Presented
41. (Original) The sampler of claim 35, wherein said inlet passageway has an inner inlet opening that is configured as a slit.

Previously Presented
42. (Original) The sampler of claim 41, wherein said slit has a generally rectangular shape.

REMARKS

The Examiner rejected claims 22-34, and 37 under 35 U.S.C. § 112, second paragraph, as indefinite. The Examiner also rejected claims 35-38, 41, and 42 under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Smith. Additionally, the Examiner rejected claims 39 and 40 under 35 U.S.C. § 103(a) as obvious over Smith as applied to claim 35 above, and further in view of either Langer or Marpel '475. Further, the Examiner rejected claims 8, 9, 20, 21, 22, 23, 33, 25, 26, 35-42 under 35 U.S.C. § 103(a) as obvious over Smith, in view of Marpel '475. Lastly the Examiner rejected claims 27-32, 34 under 35 U.S.C. § 103(a) as obvious over Smith in view of either Marpel or McFarland et al.

The Applicants appreciate the Examiner's indication that claims 1-7 are allowed.

The Section 112, Second Paragraph:

The Examiner rejected claims 22-34 and 37 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Specifically, the Examiner indicated that there were various minor informalities, such as antecedent basis issues in claims 22, 27, and 37. It is submitted that these antecedent basis issues have been corrected above and that the section 112 rejections have been overcome and should therefore be withdrawn.

The Section 102(b) Claim Rejections:

The Examiner rejected claims 35-38, 41 and 42 under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Smith.

Claim 35 has been amended as set forth above to clarify that the outlet passage is in communication with a remote vacuum source located exterior to the housing. It is submitted that this is inherent in the term outlet passage, i.e. that the outlet passage communicates with the exterior of the housing. It is thus submitted that this clarification was not made for purposes of patentability.

Smith does not teach or suggest the invention of Claim 35 either alone or in combination with any other reference of record for at least the reason that Smith does

not include any outlet passage, let alone an outlet passage that communicates with an exterior vacuum source. Smith discloses a vacuum source in the interior of the housing. Applicants' claimed invention is thus a significant improvement over Smith in that it is less costly to make, is smaller, and does not have any moving parts. Additionally, Smith teaches a microscopic slide that rests in a tray, which is in communication with the stepper motor. The stepper motor moves the tray laterally in incremental distances to obtain multiple samples on a single slide. The housing has to be large enough in order to retain the stepper motor. Moreover, to the extent Smith teaches a retaining mechanism, it does not teach a retaining mechanism that retains the slide in a fixed position. Instead, it teaches moving the slide to multiple positions with respect to the inlet opening, which again increases the size and cost of the housing in Smith and teaches away from Applicants' claimed invention. Smith therefore does not teach or suggest Applicants' claimed invention.

It is therefore submitted that claim 35 is allowable over the art of record and that claims 36-42, which depend from claim 35, are allowable for the same reasons.


The Section 103(a) Claim Rejections:

The Examiner rejected claims 8, 9, 20, 21, 22, 23, 33, 25, 26, 35-42 under 35 U.S.C. § 103(a) as obvious over Smith, in view of Marpel '475. The Examiner also rejected claims 27-32, 34 under 35 U.S.C. § 103(a) as obvious over Smith in view of either Marpel or McFarland et al.

Claim 8-11:

Claim 8 has been amended to specifically require a method of gathering airborne particles in an air sampler. The method includes connecting a vacuum source to an outlet opening of the sampler. Air is then drawn into an inlet opening formed in the top portion of the sampler with the inlet opening being substantially smaller than an upper surface of the top portion. The inlet opening exposes an inlet passageway configured such that air accelerates after it enters the inlet opening and enters an acceleration portion of the inlet passageway. Thereafter, the inlet passageway includes a laminar section, which directs the air such that it impacts the adhesive media in a perpendicular direction.

The Examiner agrees that Smith teaches a device having an inlet opening with an inlet passage 23 that only converges toward the slide 36, i.e. does not have both a laminar and a venturi portion. Accordingly, the air entering the inlet opening will accelerate in the passage, but will not impact the microscopic slide in a perpendicular fashion. Instead, as will be readily understood by one of skill in the art, much of the air will impact the slide at an angle which can adversely impact the trace results collected on the microscopic slide 36. While Smith does not teach a laminar portion, the Examiner contends that it would be obvious to combine the "orifice" in Marpel with the opening in Smith. The Applicants respectfully disagree. It is submitted that one of ordinary skill in the art would understand that the orifice in Marpel does not provide any acceleration. Instead, the opening of the orifice is merely chamfered to provide a larger opening and is not sized large enough to provide any acceleration – such as the passageway in Smith. In reality, the "orifice" in Marpel is not a passageway, but merely an opening. As such it does not teach or suggest Applicants' invention of claim 8 as Smith does not provide both a section for accelerating the air and a separate section for directing all the air in a perpendicular direction, it does not embody every element of claim 8. Further, there is no suggestion to provide a device with an inlet passageway that accelerates the air after entry and then allows the air to flow perpendicular to the slide.



It is thus submitted that claim 8 clearly defines over the art of record. It is also submitted that claims 9 – 11, which depend from claim 8 are allowable for the same reasons.

Claims 20-26:

Applicants' invention of claims 20 and 22 require an inlet passageway in communication with an inlet opening to convey air entering the sampler to the slide. The inlet opens to a passageway having a venturi section located immediately adjacent the inlet opening and a laminar section located adjacent the venturi section. Additionally, the passageway has a non-circular opening adjacent said slide to direct the air at the slide in a generally elongated fashion.

Such a configuration is not taught by either Smith or Marpel. As discussed above, the Smith reference at best only teaches a venturi section for accelerating air; it

does not teach any laminar section and therefore does not teach or suggest the benefits provided by such a configuration. Moreover, the Marpel reference teaches a circular inlet opening with no associated inlet passageway. Thus, neither reference alone or in combination teaches an inlet passageway with a venturi portion and a laminar portion, with the laminar portion having a non-circular configuration.)) 3

Accordingly, it is submitted that none of the references of record teach or suggest Applicants' invention of claims 20 and 22. Moreover, it is submitted that claim 21, which depends from claim 20, is allowable for the same reasons. It is also submitted that claims 23 - 26, which depend from claim 22, are allowable for the same reasons.

Claims 27-34

Applicants' invention of claim 27 requires an outlet opening that is in communication at one end with a remote vacuum source. It is therefore submitted that claim 27 is allowable for the same reasons provided above in connection with claim 35. It is submitted that claim 27, which requires a recessed portion formed in the housing that is sized to receive at least a portion of the slide is distinguishable over the cited references for this additional reason.

It is therefore submitted that claim 27 is allowable over the art of record and that claims 28-34, which depend from claim 27, are allowable for the same reasons.

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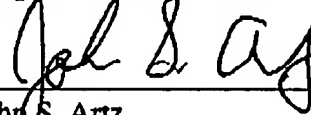
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CONCLUSION

It is submitted that all objections and rejections of record have been overcome and that all pending claims are now in a condition for allowance. A Notice of Allowance is therefore respectfully solicited.

If the Examiner should have any questions, he is urged to contact the undersigned at 248-223-9500.

Respectfully submitted,



John S. Artz

Reg. No. 36,431

Attorney for Applicant(s)

Artz & Artz, P.C.

28333 Telegraph Road, Ste. 250

Southfield, MI 48034

(248) 223-9500

(248) 223-9522 (fax)

Date: August 20, 2003

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